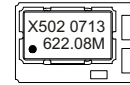


CRYSTAL CONTROLLED OSCILLATORS

3.3V SURFACE MOUNT 5.0 x 7.5mm LVDS CLOCK OSCILLATOR



X502

ABSOLUTE MAXIMUM RATINGS

TABLE 1.0

| PARAMETER | UNITS | MINIMUM | NOMINAL | MAXIMUM | UNITS | NOTE |
|---------------------|-------|---------|---------|---------|-------|------|
| Storage Temperature | | -55 | - | 125 | °C | |
| Supply Voltage | (Vcc) | -0.5 | - | 4.6 | Vdc | |
| Input Voltage | | -0.5 | - | Vcc+0.5 | Vdc | |

OPERATING SPECIFICATIONS

TABLE 2.0

| PARAMETER | | MINIMUM | NOMINAL | MAXIMUM | UNITS | NOTE |
|----------------------------------|-------|---------|---------|---------|--------|------|
| Center Frequency | (Fo) | 200 | - | 800 | MHz | |
| Total Frequency Tolerance | | -20 | - | 20 | ppm | 1 |
| Operating Temperature Range | | 0 | - | 70 | °C | |
| Supply Voltage | (Vcc) | 3.135 | 3.3 | 3.465 | Vdc | |
| Supply Current | (Icc) | - | - | 100 | mA | |
| Jitter (BW=10Hz to 20MHz) | | - | - | 10 | ps rms | |
| Jitter (BW=12kHz to 80MHz) | | - | - | 2 | ps rms | |
| SSB Phase Noise at 10Hz offset | | - | -75 | - | dBc/Hz | |
| SSB Phase Noise at 100Hz offset | | - | -95 | - | dBc/Hz | |
| SSB Phase Noise at 1KHz offset | | - | -110 | - | dBc/Hz | |
| SSB Phase Noise at 10KHz offset | | - | -125 | - | dBc/Hz | |
| SSB Phase Noise at 100KHz offset | | - | -120 | - | dBc/Hz | |

INPUT CHARACTERISTICS

TABLE 3.0

| PARAMETER | | MINIMUM | NOMINAL | MAXIMUM | UNITS | NOTE |
|------------------------------|-------|---------|---------|---------|-------|------|
| Enable Input Voltage (Low) | (Vil) | - | - | 0.3Vcc | Vdc | 2 |
| Disable Input Voltage (High) | (Vih) | 0.7Vcc | - | - | Vdc | 2 |

LVDS OUTPUT CHARACTERISTICS

TABLE 4.0

| PARAMETER | | MINIMUM | NOMINAL | MAXIMUM | UNITS | NOTE |
|-----------------------------|-------|---------|---------|---------|-------|------|
| LOAD | | - | - | 100 | Ohms | 3 |
| Output Differential Voltage | (Vod) | 250 | - | 450 | mV | |
| Duty Cycle at 50% Level | | 45 | 50 | 55 | % | |
| Rise / Fall Time | | - | 0.6 | 1.0 | nS | |

PACKAGE CHARACTERISTICS

TABLE 5.0

| | |
|---------|--|
| Package | Hermetically sealed ceramic package with grounded metal cover. |
|---------|--|

PROCESS RECOMMENDATIONS

TABLE 6.0

| | |
|---------------|-------------------------------|
| Solder Reflow | See solder profile on page 2. |
|---------------|-------------------------------|

Notes

- Includes initial tolerance, deviation over temperature, supply and load variations, shock, vibration and 10 years aging.
- When oscillator is disabled both output are in a high impedance state (Tri-State)
- Vod measured with 100 ohm resistor between the true output and the complementary output.

DESCRIPTION

The Connor-Winfield X502 is a 3.3V Crystal Controlled Oscillator (XO) with LVDS differential outputs. The X502 is designed for use with PLL systems requiring tight frequency stability vs. change in temperature and high frequency output over the commercial temperature range. The X502 is designed using a 2x or 4x PLL multiplication to achieve the high frequency output.

FEATURES

- 3.3V OPERATION
- LOW JITTER <2ps RMS
- TOTAL FREQUENCY TOLERANCE: ±20ppm
- TEMPERATURE RANGE: 0 to 70°C
- DIFFERENTIAL LVDS OUTPUTS
- SURFACE MOUNT PACKAGE
- TAPE AND REEL PACKAGING
- RoHS COMPLIANT / LEAD FREE

ORDERING INFORMATION

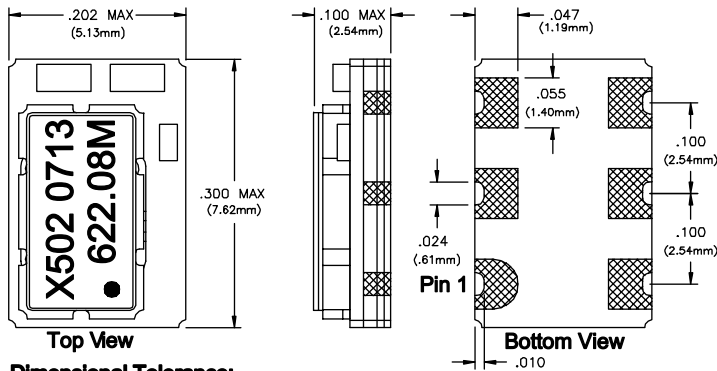
X502 - 622.08M



Specifications subject to change without notice.

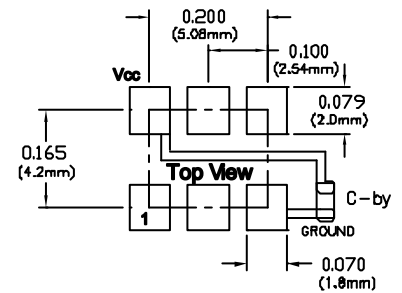
CRYSTAL CONTROLLED OSCILLATORS

Package Layout



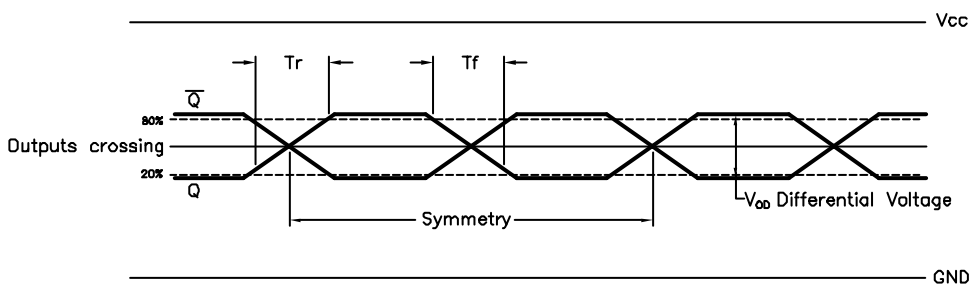
Dimensional Tolerance:
 $\pm .005$ (.127mm)

Suggested Pad Layout



Bypass capacitor, C-by, should be ceramic capacitor $\geq .01\mu\text{f}$.

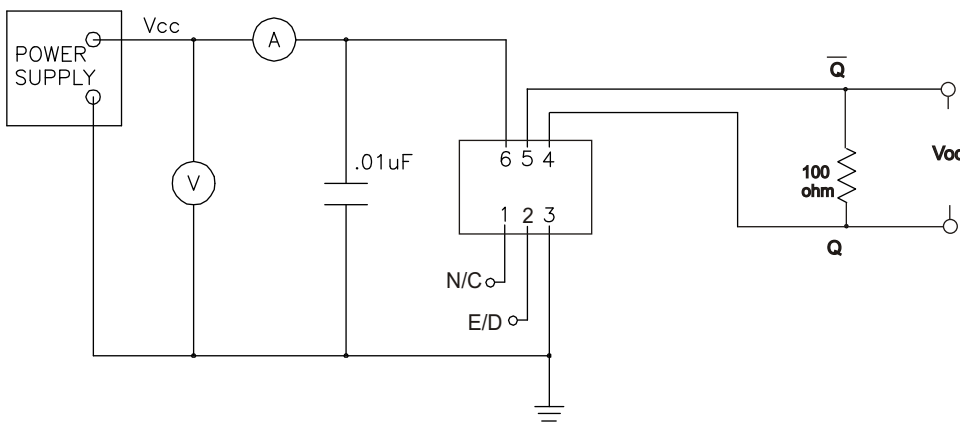
Output Waveforms



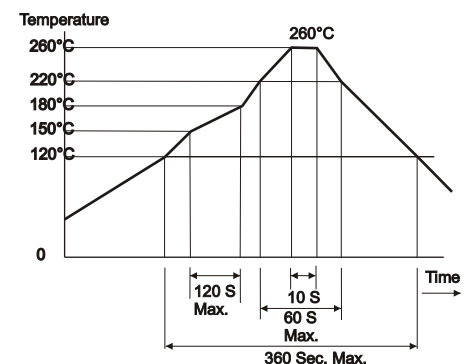
Pin Connections

| Pin | Function |
|-----|------------------|
| 1 | N/C |
| 2 | Enable / Disable |
| 3 | Ground (Case) |
| 4 | Output Q |
| 5 | Comp Output Q |
| 6 | Vcc |

Test Circuit



Solder Profile



Specifications subject to change without notice.